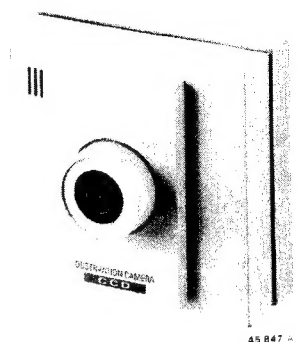


Service  
Service  
Service



# Service Manual

| CONTENTS                           | Page |
|------------------------------------|------|
| 1. Introduction                    | 1    |
| 2. Technical Data                  | 2    |
| 3. Warnings                        | 2    |
| 4. Remarks                         | 2    |
| 5. Block Diagram                   | 3    |
| 6. Location of Adjustment Controls | 3    |
| 7. Service Adjustments             | 3    |
| 8. Wiring Diagrams                 | 4    |
| 9. Schematic Diagrams              | 5    |
| 10. Exploded View and Partslist    | 6    |

## INTRODUCTION

This CCD Observation Camera is a black and white videocamera with a built-in electret microphone, a fixed focus lens and an RF output in TV band I (channel 3 or 4).

It is designed to work in a system with maximum 6 cameras together with a special B/W monitor.

The operating power for the camera is supplied via the coaxial cable.


The camera is suitable for limited outdoor use.

It is backwards compatible with both vidicon camera VK4902 and CCD camera CCD806/812.

## TECHNICAL DATA

|                          |  |
|--------------------------|--|
| Supply voltage           | : 9.8 - 16 Volts DC  |
| Supply current operation | : 100 mA at 12 V. DC   |
| stand-by                 | : < 10 mA at 4 V. DC   |
| Warming up time          | : < 0.8 sec.   |
| Ambient temperature      | : -20°C to +55°C.  |
| Relative humidity        | : 20% - 90%  |
| Pick-up element          | : 1/3" Interline CCD<br>VCM8120/00T/01T: LZ2324<br>VC81205R : LZ2314 |
| Number of pixels         | : LZ2324 : 512(H) x 582(V)<br>LZ2314 : 512(H) x 492(V)               |
| Horizontal resolution    | : > 340 TV lines in the centre                                       |
| Illumination range       | : 1 to 25000 Lux.  |
| Signal to noise ratio    | : > 48 dB (illum.level > 100 lux).                                   |
| Modulated RF output      | : Channel 3 or 4 (selectable)  |
| Modulator system         | : VCM8120/00T CCIR-B<br>VCM8120/01T CCIR-I<br>VC81205R EIA           |
| Microphone               | : built-in electret  |
| Lens                     | : fixed 3.65 mm F2.0   |
| Focusability             | : fixed 1m-infinity  |
| Tripod fixation          | : 1/4" BSW.  |
| Dimensions               | : 70(W) x 70(H) x 54(D)  |

## WARNINGS

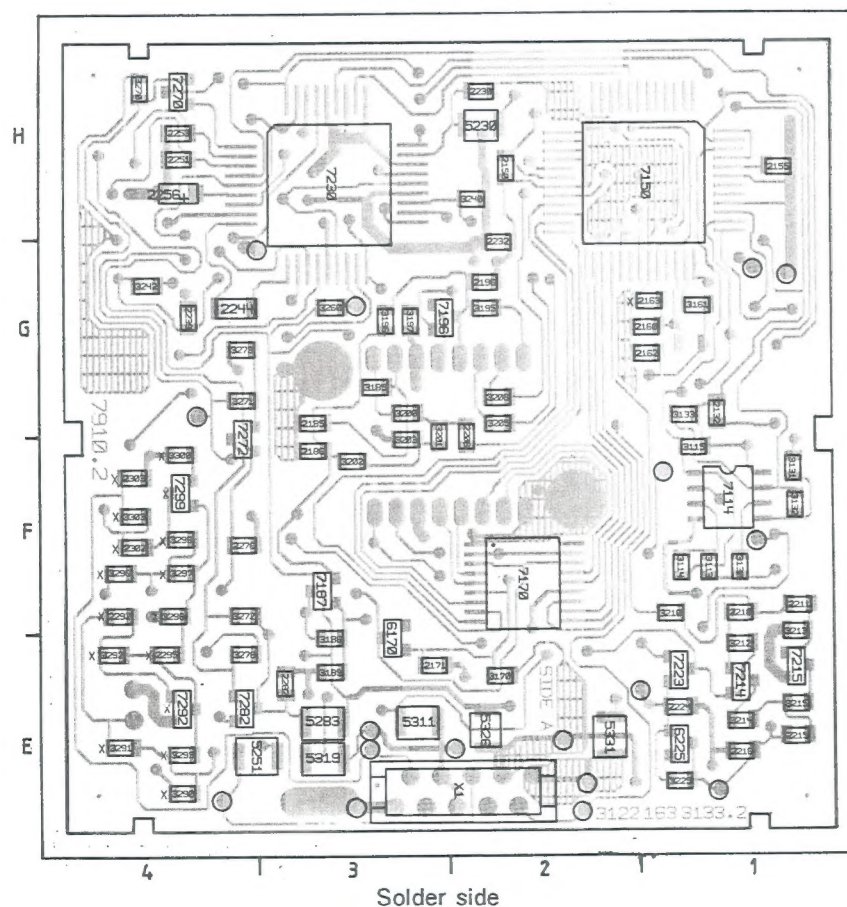
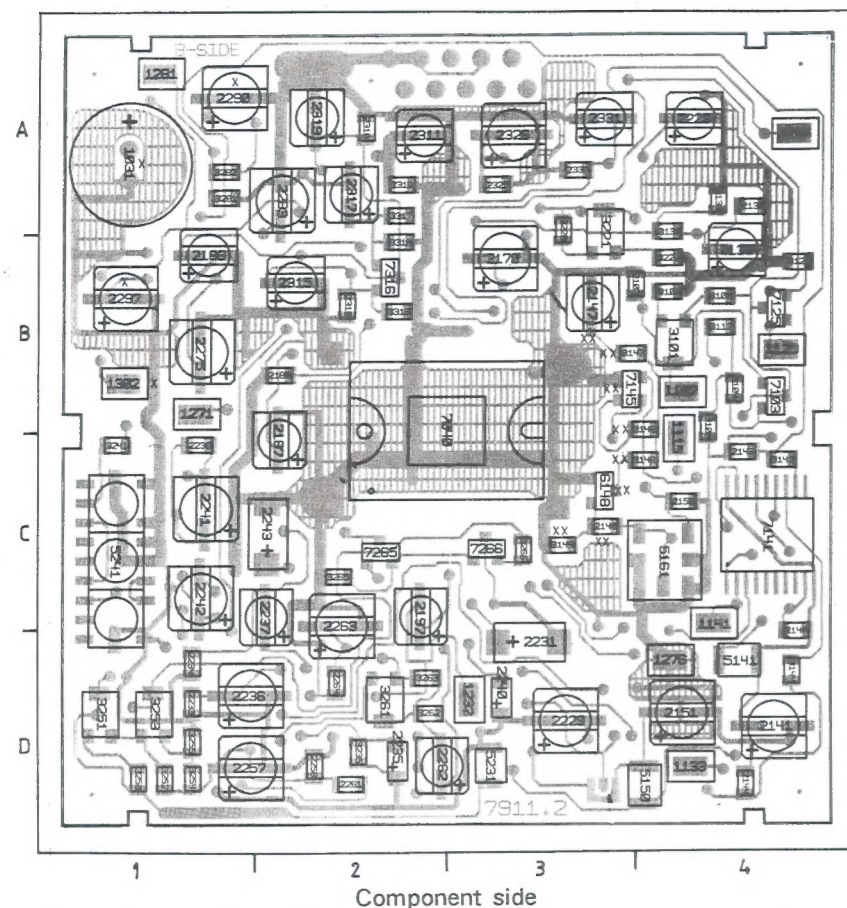
- 1. NEVER measure directly at the output of the CCD image sensor. It will destroy the sensor immediately. Always measure behind buffer 7196.**
- Safety regulations require that the set is resored to its original condition and that components identical to the original types be used.
- 

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can destroy them or reduce their lifetime drastically. When repairing, make sure that you are connected to the same potential as the mass of the set. Also keep tools at that potential.
- Always switch the set off before replacing any of the components or separating the PCboards.

## REMARKS

- The values of resistors and capacitors are given without decimal point. e.g.3k9. Please read 3.9k.

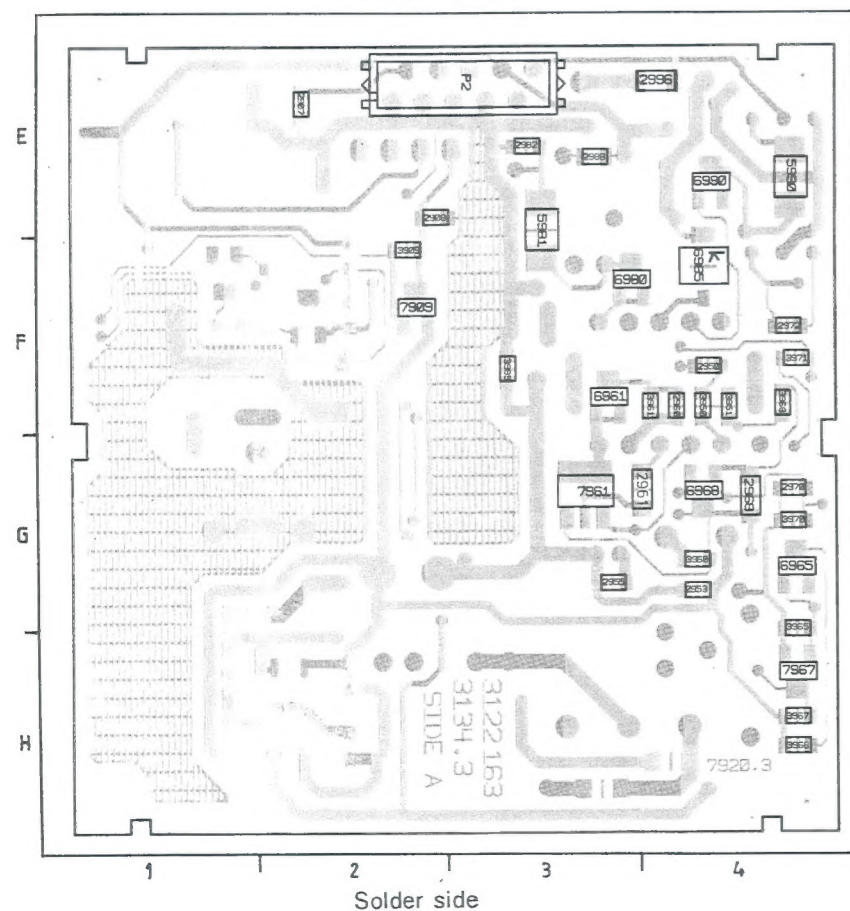
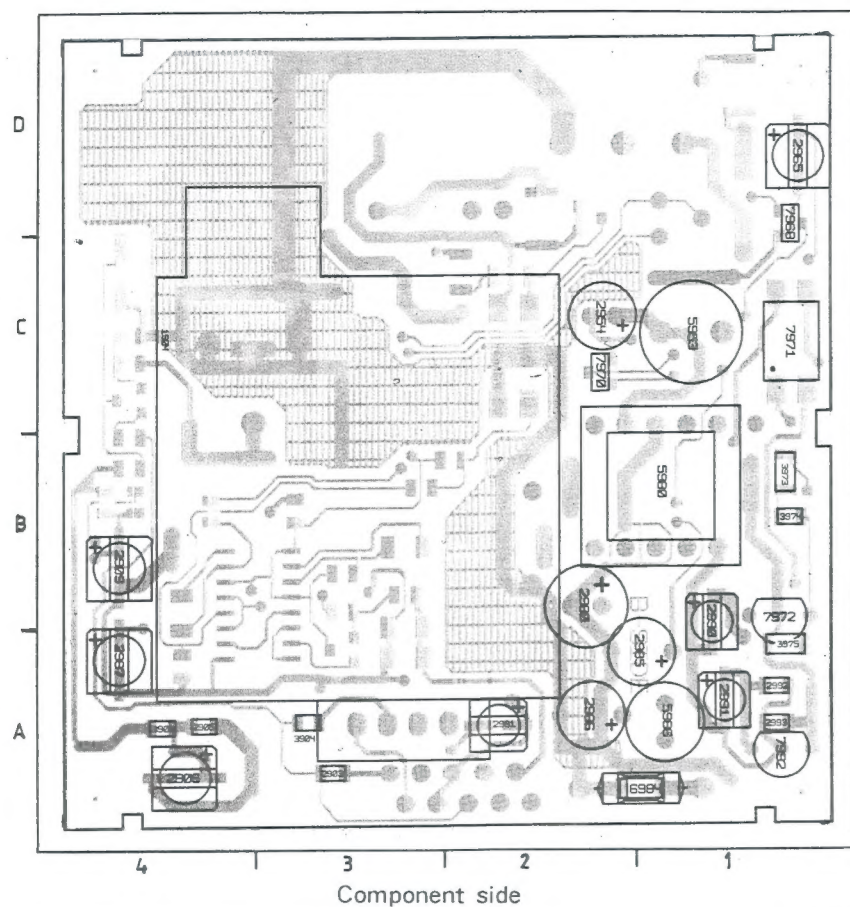
# WIRING DIAGRAM PROCESSING PANEL



**NOTE:** This lay-out is applicable for both VCM81 & VCM61.  
Thus, some components mentioned **may not** be present on the panels

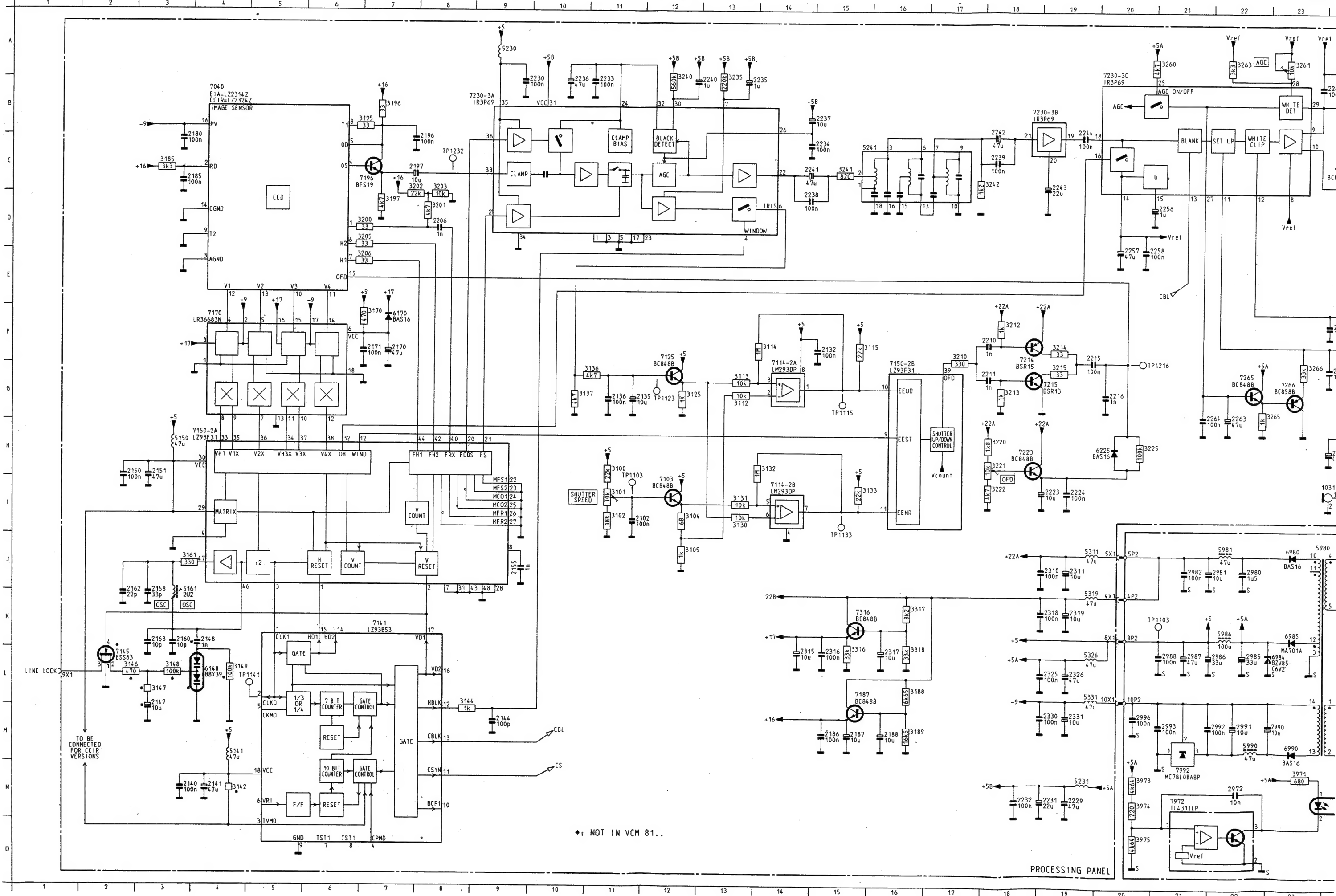
|      |    |      |    |
|------|----|------|----|
| 1031 | A1 | 3136 | B4 |
| 1103 | B4 | 3137 | A4 |
| 1115 | C4 | 3143 | C4 |
| 1123 | B4 | 3144 | D4 |
| 1133 | D4 | 3145 | B3 |
| 1141 | C4 | 3146 | C4 |
| 1216 | A4 | 3147 | B3 |
| 1232 | D3 | 3149 | C3 |
| 1271 | B1 | 3161 | G1 |
| 1276 | D4 | 3170 | E2 |
| 1281 | A1 | 3185 | G3 |
| 1302 | B1 | 3188 | E3 |
| 2102 | B3 | 3189 | E3 |
| 2132 | G1 | 3195 | G2 |
| 2135 | B4 | 3196 | G3 |
| 2136 | A4 | 3197 | G3 |
| 2140 | C4 | 3200 | G3 |
| 2141 | D4 | 3201 | G3 |
| 2143 | C4 | 3202 | F3 |
| 2144 | D4 | 3203 | F3 |
| 2147 | B3 | 3205 | G2 |
| 2148 | C3 | 3206 | G2 |
| 2150 | H2 | 3210 | F1 |
| 2151 | D4 | 3212 | E1 |
| 2155 | H1 | 3213 | F1 |
| 2156 | C4 | 3214 | E1 |
| 2160 | G2 | 3215 | E1 |
| 2162 | G2 | 3220 | A3 |
| 2163 | G2 | 3221 | A3 |
| 2170 | A3 | 3222 | B4 |
| 2171 | E3 | 3225 | E1 |
| 2180 | B2 | 3235 | D2 |
| 2185 | G3 | 3240 | H2 |
| 2186 | F3 | 3241 | C1 |
| 2187 | B2 | 3250 | D1 |
| 2188 | A1 | 3251 | D1 |
| 2196 | G2 | 3252 | D1 |
| 2197 | C2 | 3253 | D1 |
| 2206 | F2 | 3254 | D1 |
| 2210 | F1 | 3255 | D1 |
| 2211 | F1 | 3260 | G3 |
| 2215 | E1 | 3261 | D2 |
| 2216 | E1 | 3262 | D2 |
| 2223 | A4 | 3263 | D2 |
| 2224 | E1 | 3265 | C2 |
| 2229 | D3 | 3266 | C3 |
| 2230 | H2 | 3270 | H4 |
| 2231 | D3 | 3271 | G4 |
| 2232 | G2 | 3272 | F4 |
| 2233 | D1 | 3273 | G4 |
| 2234 | D1 | 3276 | E4 |
| 2235 | D2 | 3281 | A1 |
| 2236 | D1 | 3282 | A1 |
| 2237 | C2 | 3290 | E4 |
| 2238 | C1 | 3291 | E4 |
| 2239 | G4 | 3292 | E4 |
| 2240 | D3 | 3293 | E4 |
| 2241 | C1 | 3296 | F4 |
| 2242 | C1 | 3297 | F4 |
| 2243 | C1 | 3298 | F4 |
| 2244 | G4 | 3299 | F4 |
| 2251 | H4 | 3300 | F4 |
| 2253 | H4 | 3303 | F4 |
| 2256 | H4 | 3316 | B2 |
| 2257 | D1 | 3317 | A2 |
| 2258 | D2 | 3318 | B2 |
| 2261 | D2 | 5141 | D4 |
| 2262 | D2 | 5150 | D4 |
| 2263 | C2 | 5161 | C4 |
| 2264 | D2 | 5230 | H2 |
| 2275 | B1 | 5231 | D3 |
| 2276 | F4 | 5241 | C1 |
| 2282 | E3 | 5251 | E1 |
| 2283 | A2 | 5283 | E3 |
| 2290 | A1 | 5311 | E3 |
| 2292 | F4 | 5319 | E3 |
| 2295 | E4 | 5326 | E2 |
| 2297 | B1 | 5331 | E2 |
| 2302 | F4 | 6148 | C3 |
| 2303 | F4 | 6170 | E3 |
| 2310 | A2 | 6225 | E1 |
| 2311 | A2 | 7040 | C2 |
| 2315 | B2 | 7103 | B4 |
| 2316 | B2 | 7114 | F1 |
| 2317 | A2 | 7125 | B4 |
| 2318 | A2 | 7141 | C4 |
| 2319 | A2 | 7145 | B4 |
| 2325 | A3 | 7150 | H1 |
| 2326 | A3 | 7170 | F2 |
| 2330 | A3 | 7187 | F3 |
| 2331 | A3 | 7196 | G2 |
| 3100 | B4 | 7214 | E1 |
| 3101 | B4 | 7215 | E1 |
| 3102 | B4 | 7223 | E1 |
| 3104 | B4 | 7230 | H3 |
| 3105 | B4 | 7265 | C2 |
| 3112 | B4 | 7266 | C3 |
| 3113 | F1 | 7270 | H4 |
| 3114 | F1 | 7272 | F4 |
| 3115 | F1 | 7282 | E4 |
| 3123 | F1 | 7292 | E4 |
| 3124 | F1 | 7299 | F4 |
| 3125 | B4 | 7316 | B2 |
| 3130 | F1 |      |    |
| 3131 | F1 |      |    |
| 3132 | F1 |      |    |
| 3133 | G1 |      |    |

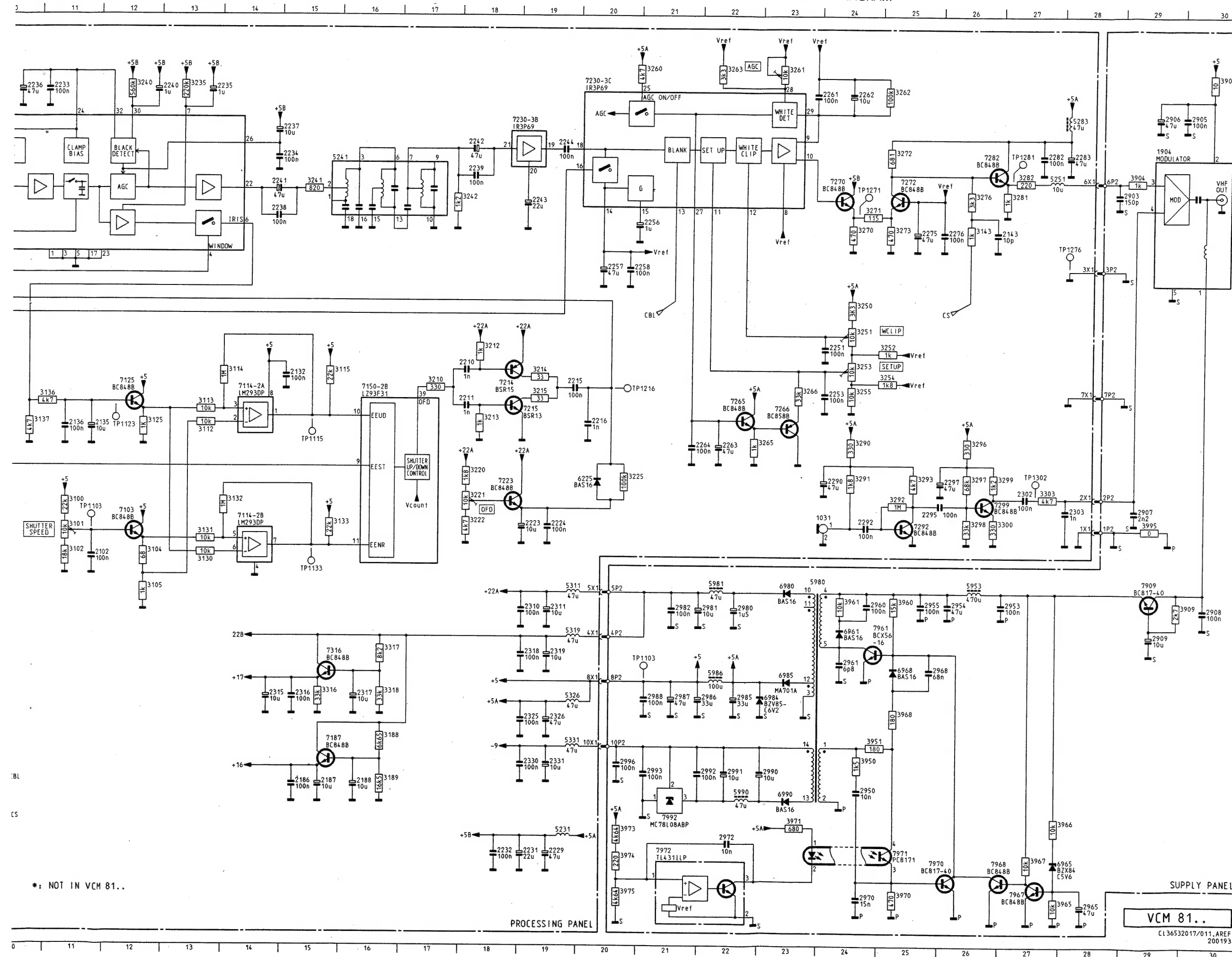




1904 C2  
 2903 A3  
 2905 A4  
 2906 A4  
 2907 E2  
 2908 E2  
 2909 B4  
 2950 F4  
 2953 G4  
 2954 C2  
 2955 G3  
 2960 F4  
 2961 G3  
 2965 D1  
 2968 G4  
 2970 G4  
 2972 F4  
 2980 A2  
 2981 A2  
 2982 E3  
 2985 A1  
 2986 A2  
 2987 A4  
 2988 E3  
 2990 A1  
 2991 A1  
 2992 A1  
 2993 A1  
 2996 E4  
 3904 A3  
 3905 A4  
 3950 F4  
 3951 F4  
 3960 G4  
 3961 F3  
 3965 G4  
 3966 H4  
 3967 H4  
 3968 F4  
 3970 G4  
 3971 F4  
 3973 B1  
 3974 B1  
 3975 A1  
 3995 F3  
 5953 C1  
 5980 C1  
 5981 E3  
 5986 A1  
 5990 E4  
 6961 F3  
 6965 G4  
 6968 G4  
 6980 F3  
 6985 F4  
 6990 E4  
 7909 F2  
 7961 G3  
 7967 G4  
 7968 C1  
 7970 C1  
 7971 C1  
 7972 B1  
 7992 A1

NOTE: 7972 and 7992 have to be bent away.

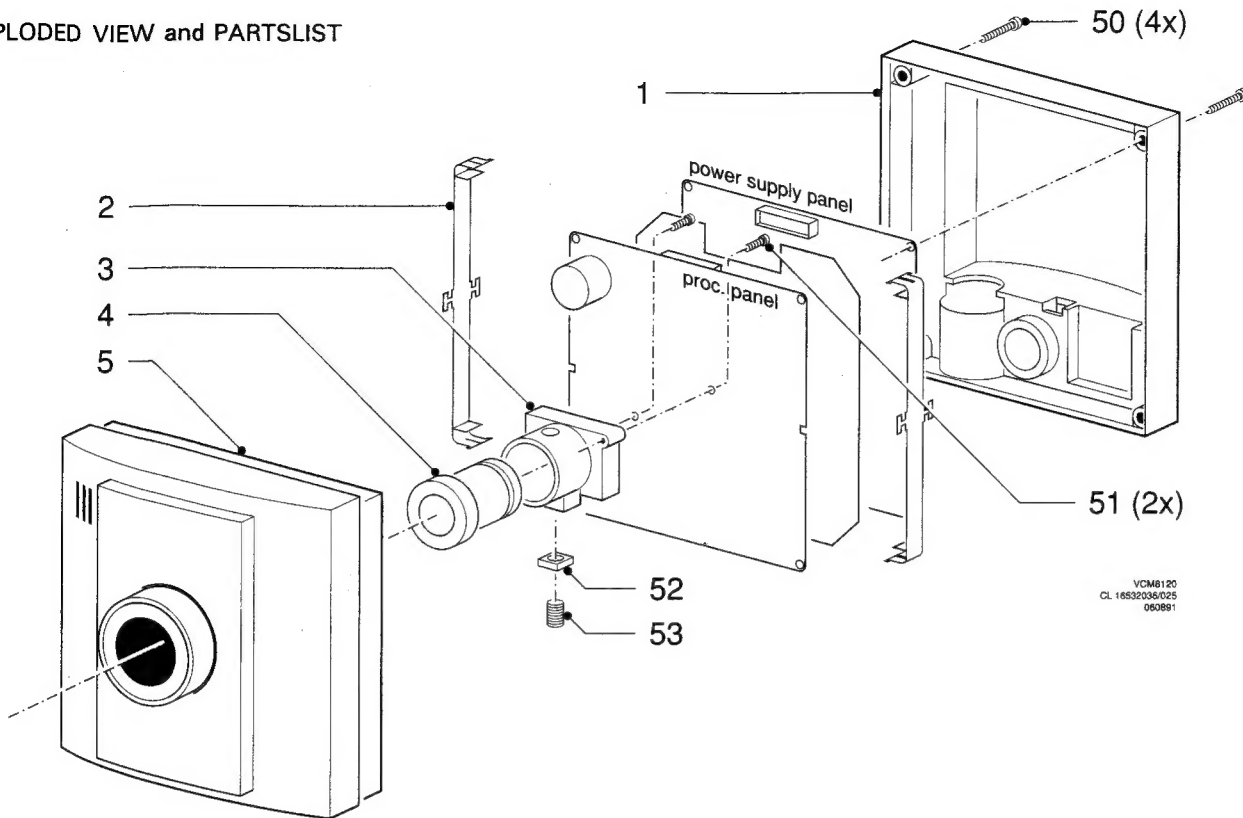




|      |     |      |     |      |     |
|------|-----|------|-----|------|-----|
| 1031 | 124 | 3114 | F14 | 6984 | L23 |
| 1904 | C29 | 3115 | F15 | 6985 | K23 |
| 2102 | 111 | 3125 | G12 | 6990 | M23 |
| 2132 | F15 | 3130 | I13 | 7040 | B 4 |
| 2135 | G11 | 3131 | I13 | 7103 | I12 |
| 2136 | G11 | 3132 | H14 | 7114 | G14 |
| 2140 | N 3 | 3133 | I15 | 7114 | I14 |
| 2141 | N 4 | 3136 | G11 | 7125 | F12 |
| 2143 | D26 | 3137 | G10 | 7141 | K 7 |
| 2144 | M 9 | 3142 | N 4 | 7145 | L 2 |
| 2147 | M 3 | 3143 | D26 | 7150 | G16 |
| 2148 | H 2 | 3144 | M 8 | 7150 | H 4 |
| 2150 | H 2 | 3146 | L 2 | 7170 | F 4 |
| 2151 | H 3 | 3147 | L 3 | 7187 | L15 |
| 2155 | J 9 | 3148 | L 3 | 7196 | C 7 |
| 2158 | K 3 | 3149 | L 4 | 7214 | F18 |
| 2160 | K 3 | 3161 | J 3 | 7215 | G19 |
| 2162 | K 2 | 3170 | F 7 | 7223 | H18 |
| 2163 | K 3 | 3185 | C 3 | 7230 | B 9 |
| 2170 | F 7 | 3188 | L16 | 7230 | B18 |
| 2171 | F 7 | 3189 | M16 | 7230 | A20 |
| 2180 | C 3 | 3195 | B 7 | 7265 | G22 |
| 2185 | C 3 | 3196 | B 7 | 7266 | G23 |
| 2186 | M15 | 3197 | D 7 | 7270 | C24 |
| 2187 | M15 | 3200 | D 7 | 7272 | C25 |
| 2188 | M16 | 3201 | D 8 | 7282 | C26 |
| 2196 | C 8 | 3202 | C 7 | 7292 | I25 |
| 2197 | C 7 | 3203 | C 8 | 7299 | H26 |
| 2206 | D 8 | 3205 | E 7 | 7316 | K15 |
| 2210 | F18 | 3206 | E 7 | 7909 | J29 |
| 2211 | G18 | 3210 | F17 | 7961 | J24 |
| 2215 | F19 | 3212 | F18 | 7967 | O27 |
| 2216 | G20 | 3213 | G18 | 7968 | N27 |
| 2223 | I19 | 3214 | F19 | 7970 | N25 |
| 2224 | I19 | 3215 | G19 | 7971 | N25 |
| 2229 | N19 | 3220 | H18 | 7972 | N21 |
| 2230 | B 9 | 3221 | H18 | 7992 | M21 |
| 2231 | N19 | 3222 | I18 |      |     |
| 2232 | N18 | 3225 | H20 |      |     |
| 2233 | B11 | 3235 | A13 |      |     |
| 2234 | C15 | 3240 | A12 |      |     |
| 2235 | B13 | 3241 | C15 |      |     |
| 2236 | B10 | 3242 | C18 |      |     |
| 2237 | B15 | 3250 | E24 |      |     |
| 2238 | D14 | 3251 | E24 |      |     |
| 2239 | C18 | 3252 | F25 |      |     |
| 2240 | B13 | 3253 | F24 |      |     |
| 2241 | C14 | 3254 | F25 |      |     |
| 2242 | B18 | 3255 | F24 |      |     |
| 2243 | C19 | 3260 | A21 |      |     |
| 2244 | B19 | 3261 | A23 |      |     |
| 2251 | F24 | 3262 | A25 |      |     |
| 2253 | G24 | 3263 | A22 |      |     |
| 2256 | D21 | 3265 | G22 |      |     |
| 2257 | E20 | 3266 | F23 |      |     |
| 2258 | E20 | 3270 | D24 |      |     |
| 2261 | B23 | 3271 | D24 |      |     |
| 2262 | B24 | 3272 | B25 |      |     |
| 2263 | G22 | 3273 | D25 |      |     |
| 2264 | G21 | 3276 | C26 |      |     |
| 2275 | D25 | 3281 | C27 |      |     |
| 2276 | D26 | 3282 | C27 |      |     |
| 2282 | C27 | 3290 | G24 |      |     |
| 2283 | C28 | 3291 | H24 |      |     |
| 2290 | H24 | 3292 | H25 |      |     |
| 2292 | I24 | 3293 | H25 |      |     |
| 2295 | H25 | 3296 | G26 |      |     |
| 2297 | H26 | 3297 | H26 |      |     |
| 2302 | H27 | 3298 | I26 |      |     |
| 2303 | H28 | 3299 | H26 |      |     |
| 2310 | J19 | 3300 | I26 |      |     |
| 2311 | J19 | 3303 | H27 |      |     |
| 2315 | L14 | 3316 | K15 |      |     |
| 2316 | L15 | 3317 | K16 |      |     |
| 2317 | L16 | 3318 | K16 |      |     |
| 2318 | K19 | 3904 | C29 |      |     |
| 2319 | K19 | 3905 | A30 |      |     |
| 2325 | L19 | 3909 | J29 |      |     |
| 2326 | L19 | 3950 | M24 |      |     |
| 2330 | M19 | 3951 | L24 |      |     |
| 2331 | M19 | 3960 | J25 |      |     |
| 2903 | C28 | 3961 | J24 |      |     |
| 2905 | B30 | 3965 | O27 |      |     |
| 2906 | B29 | 3966 | N27 |      |     |
| 2907 | H29 | 3967 | N27 |      |     |
| 2908 | J30 | 3968 | L25 |      |     |
| 2909 | K29 | 3970 | O25 |      |     |
| 2950 | M24 | 3971 | N23 |      |     |
| 2953 | J27 | 3973 | N20 |      |     |
| 2954 | J26 | 3974 | N20 |      |     |
| 2955 | J25 | 3975 | O20 |      |     |
| 2960 | J24 | 3995 | I29 |      |     |
| 2961 | K24 | 5141 | M 4 |      |     |
| 2965 | O28 | 5150 | H 3 |      |     |
| 2968 | K25 | 5161 | K 3 |      |     |
| 2970 | O24 | 5230 | A 9 |      |     |
| 2972 | N22 | 5231 | N19 |      |     |
| 2980 | J22 | 5241 | C15 |      |     |
| 2981 | J22 | 5251 | C27 |      |     |
| 2982 | J21 | 5283 | B28 |      |     |
| 2985 | L22 | 5311 | J19 |      |     |
| 2986 | L22 | 5319 | K19 |      |     |
| 2987 | L21 | 5326 | L19 |      |     |
| 2988 | L21 | 5331 | L19 |      |     |
| 2990 | M23 | 5953 | J26 |      |     |
| 2991 | M22 | 5980 | J24 |      |     |
| 2992 | M22 | 5981 | J22 |      |     |
| 2993 | M21 | 5986 | K22 |      |     |
| 2996 | M20 | 5990 | M22 |      |     |
| 3100 | H11 | 6148 | L 4 |      |     |
| 3101 | I11 | 6170 | F 7 |      |     |
| 3102 | I11 | 6225 | H20 |      |     |
| 3104 | I12 | 6961 | J24 |      |     |
| 3105 | J12 | 6965 | N27 |      |     |
| 3112 | G13 | 6968 | K25 |      |     |
| 3113 | G13 | 6980 | J23 |      |     |



## EXPLODED VIEW and PARTSLIST



4822 462 10507 Tripod assy /00/01T  
 4822 462 10516 Tripod assy /05R  
 4822 502 21314 Screw for tripod  
 4822 505 10665 Lock nut M5  
 4822 321 61405 Coax conn. cable  
 4822 264 10233 Male coax plug  
 4822 267 31424 Fem. coax socket  
 4822 736 52646 DFU /00T/01T  
 4822 736 52817 DFU /05R  
 4822 310 32045 Extension board  
 4822 395 50426 Trimming tool SMD

1 4822 432 60621 Housing back /00T/01T  
 1 4822 432 60678 Housing back /05R  
 2 4822 466 93052 Spacer  
 3 4822 256 80074 Lens Holder  
 4 4822 381 11291 Lens 3.6 mm  
 5 4822 432 60619 Housing front /00T/01T  
 5 4822 432 60681 Housing front /05R  
 50 4822 502 13887 Torx screw 2x20  
 51 4822 502 13886 Torx screw 2x5  
 52 4822 505 10635 Square nut  
 53 4822 502 10176 Screw M3x5

## Various

1020 4822 212 30438 Proc. PCB assy 00/01T  
 1020 4822 212 30439 Proc. PCB assy 05R  
 1021 4822 214 33474 Power board /00T  
 1021 4822 214 33536 Power board /01T  
 1021 4822 214 33475 Power board /05R  
 1031 4822 242 30176 Microphone  
 1035 4822 212 10232 Proc. panel  
 1103 4822 404 60717 Test clip chip  
 1115 4822 404 60717 Test clip chip  
 1123 4822 404 60717 Test clip chip  
 1133 4822 404 60717 Test clip chip  
 1141 4822 404 60717 Test clip chip

1216 4822 404 60717 Test clip chip  
 1232 4822 404 60717 Test clip chip  
 1271 4822 404 60717 Test clip chip  
 1276 4822 404 60717 Test clip chip  
 1281 4822 404 60717 Test clip chip  
 1302 4822 404 60717 Test clip chip  
 X1 5322 265 40903 Connector 10p  
 P2 4822 265 41281 Connector 10p

## Modulator

1904 4822 214 33469 Modulator /00T  
 1904 4822 214 33535 Modulator /01T  
 1904 4822 214 33468 Modulator /05R

## Capacitors

2102 4822 126 10002 100nF 20% 25V  
 2132 4822 126 10002 100nF 20% 25V  
 2135 4822 124 23982 10μF 20% 25V  
 2136 4822 126 10002 100nF 20% 25V  
 2140 4822 126 10002 100nF +80/-20%  
 2141 4822 124 23981 47μF 20% 6.3V  
 2143 5322 122 32448 10pF 5% 50V  
 2144 5322 122 32531 100pF 5% 50V  
 2150 4822 126 10002 100nF 20% 25V  
 2151 4822 124 23981 47μF 20% 6.3V  
 2155 5322 122 34123 1nF 10% 50V  
 2158 5322 122 32659 33pF 5% 50V  
 2160 5322 122 32448 10pF 5% 50V  
 2162 4822 122 33981 22pF 5%  
 2163 5322 122 32448 10pF 5% 50V  
 2170 4822 124 23981 47μF 20% 6.3V  
 2171 4822 126 10002 100nF 20% 25V  
 2180 4822 126 10002 100nF 20% 25V  
 2185 4822 126 10002 100nF 20% 25V  
 2186 4822 126 10002 100nF 20% 25V  
 2187 4822 124 23982 10μF 20% 25V  
 2188 4822 124 23982 10μF 20% 25V  
 2196 4822 126 10002 100nF 20% 25V  
 2197 4822 124 23982 10μF 20% 25V  
 2206 5322 122 34123 1nF 10% 50V

2210 5322 122 34123 1nF 10% 50V  
 2211 5322 122 34123 1nF 10% 50V  
 2215 4822 126 10002 100nF 20% 25V  
 2216 5322 122 34123 1nF 10% 50V  
 2223 4822 124 23982 10μF 20% 25V  
 2224 4822 126 10002 100nF 20% 25V  
 2229 4822 124 23981 47μF 20% 6.3V  
 2230 4822 126 10002 100nF 20% 25V  
 2231 4822 126 11216 22μF 20% 6.3V  
 2232 4822 126 10002 100nF 20% 25V  
 2233 4822 126 10002 100nF 20% 25V  
 2234 4822 126 10002 100nF 20% 25V  
 2235 4822 126 11219 1μF 20% 16V  
 2236 4822 124 23981 47μF 20% 6.3V  
 2237 4822 124 23982 10μF 20% 25V  
 2238 4822 126 10002 100nF 20% 25V  
 2239 4822 126 10002 100nF 20% 25V  
 2240 4822 126 11219 1μF 20% 16V  
 2241 4822 124 23981 47μF 20% 6.3V  
 2242 4822 124 23981 47μF 20% 6.3V  
 2243 4822 126 11216 22μF 20% 6.3V  
 2244 4822 122 33496 100nF 10% 63V  
 2251 4822 126 10002 100nF 20% 25V  
 2253 4822 126 10002 100nF 20% 25V  
 2256 4822 126 11219 1μF 20% 16V  
 2257 4822 124 23981 47μF 20% 6.3V  
 2258 4822 126 10002 100nF 20% 25V  
 2261 4822 126 10002 100nF 20% 25V  
 2262 4822 124 23982 10μF 20% 25V  
 2263 4822 124 23981 47μF 20% 6.3V  
 2264 4822 126 10002 100nF 20% 25V  
 2275 4822 124 23981 47μF 20% 6.3V  
 2276 4822 126 10002 100nF 20% 25V  
 2282 4822 126 10002 100nF 20% 25V  
 2283 4822 124 23981 47μF 20% 6.3V  
 2290 4822 124 23981 47μF 20% 6.3V  
 2292 4822 126 10002 100nF 20% 25V  
 2295 4822 126 10002 100nF 20% 25V

2297 4822 124 23981 47 $\mu$ F 20% 6.3V  
 2302 4822 126 10002 100nF 20% 25V  
 2303 5322 122 34123 1nF 10% 50V  
 2310 4822 126 10002 100nF 20% 25V  
 2311 4822 124 23982 10 $\mu$ F 20% 25V  
 2315 4822 124 23982 10 $\mu$ F 20% 25V  
 2316 4822 126 10002 100nF 20% 25V  
 2317 4822 124 23982 10 $\mu$ F 20% 25V  
 2318 4822 126 10002 100nF 20% 25V  
 2319 4822 124 23982 10 $\mu$ F 20% 25V  
 2325 4822 126 10002 100nF 20% 25V  
 2326 4822 124 23981 47 $\mu$ F 20% 6.3V  
 2330 4822 126 10002 100nF 20% 25V  
 2331 4822 124 23982 10 $\mu$ F 20% 25V  
 2903 5322 122 33538 150pF 5% NPO  
 2905 4822 126 10002 100nF +80/-20%  
 2906 4822 124 23981 47 $\mu$ F 20% 6.3V  
 2907 4822 122 33127 2n2 10% x7R  
 2908 4822 126 10002 100nF +80/-20%  
 2909 4822 124 23982 10 $\mu$ F 20% 25V  
 2950 5322 122 34098 10nF 10% X7R  
 2953 4822 126 10002 100nF +80/-20%  
 2954 4822 124 40433 470 $\mu$ F 25V  
 2955 4822 126 10002 100nF +80/-20%  
 2960 4822 126 10002 100nF +80/-20%  
 2961 4822 122 32507 6.8pF 5% 50V  
 2965 4822 124 23981 47 $\mu$ F 20% 6.3V  
 2968 4822 122 32891 68nF 10%  
 2970 4822 122 33128 15nF 10% X7R  
 2972 5322 122 34098 10nF 10% X7R  
 2980 4822 124 23979 1.5 $\mu$ F 20% 25V  
 2981 4822 124 23982 10 $\mu$ F 20% 25V  
 2982 4822 126 10002 100nF +80/-20%  
 2985 4822 124 23795 33 $\mu$ F 10% 6.3V  
 2986 4822 124 23795 33 $\mu$ F 10% 6.3V  
 2987 4822 124 23981 47 $\mu$ F 20% 6.3V  
 2988 4822 126 10002 100nF +80/-20%  
 2990 4822 124 23982 10 $\mu$ F 25V  
 2991 4822 124 23982 10 $\mu$ F 25V  
 2992 4822 126 10002 100nF +80/-20%  
 2993 4822 126 10002 100nF +80/-20%  
 2996 4822 122 33496 100nF 63V

**Resistor**

3100 4822 051 20223 22k 5% 0,1W  
 3101 4822 100 11663 10k  
 3102 4822 051 20183 18k 5% 0,1W  
 3104 4822 051 20689 68 $\Omega$  5% 0,1W  
 3105 4822 051 20102 1k 5% 0,1W  
 3112 4822 051 20103 10k 5% 0,1W  
 3113 4822 051 20103 10k 5% 0,1W  
 3114 4822 051 20105 1M 5% 0,1W  
 3115 4822 051 20223 22k 5% 0,1W  
 3124 4822 111 91536  
 3125 4822 051 20102 1k 5% 0,1W  
 3130 4822 051 20103 10k 5% 0,1W  
 3131 4822 051 20103 10k 5% 0,1W  
 3132 4822 051 20105 1M 5% 0,1W  
 3133 4822 051 20223 22k 5% 0,1W  
 3136 4822 051 20472 4k7 5% 0,1W  
 3137 4822 051 20472 4k7 5% 0,1W  
 3143 4822 051 20102 1k 5% 0,1W  
 3144 4822 051 20102 1k 5% 0,1W  
 3155 4822 111 91536  
 3161 4822 051 20331 330 $\Omega$  5% 0,1W  
 3170 4822 051 20471 470 $\Omega$  5% 0,1W  
 3185 4822 051 20332 3k3 5% 0,1W  
 3188 4822 116 83479 6k 65 1%  
 3189 4822 116 83481 16k 5  
 3195 4822 051 20339 33 $\Omega$  5% 0,1W

3196 4822 051 20339 33 $\Omega$  5% 0,1W  
 3197 4822 051 20472 4k7 5% 0,1W  
 3200 4822 051 20339 33 $\Omega$  5% 0,1W  
 3201 4822 051 20472 4k7 5% 0,1W  
 3202 4822 051 20223 22k 5% 0,1W  
 3203 4822 051 20103 10k 5% 0,1W  
 3205 4822 051 20339 33 $\Omega$  5% 0,1W  
 3206 4822 051 20339 33 $\Omega$  5% 0,1W  
 3210 4822 051 20331 330 $\Omega$  5% 0,1W  
 3212 4822 051 20102 1k 5% 0,1W  
 3213 4822 051 20102 1k 5% 0,1W  
 3214 4822 051 20339 33 $\Omega$  5% 0,1W  
 3215 4822 051 20339 33 $\Omega$  5% 0,1W  
 3220 4822 051 20182 1k8 5% 0,1W  
 3221 4822 100 11663 10k potm.  
 3222 4822 051 20472 4k7 5% 0,1W  
 3225 4822 051 20104 100k 5% 0,1W  
 3235 4822 051 20224 220k 5% 0,1W  
 3240 4822 051 20564 560k 5% 0,1W  
 3241 4822 051 20821 820 $\Omega$  5% 0,1W  
 3242 4822 051 20122 1k2 5% 0,1W  
 3250 4822 051 20332 3k3 5% 0,1W  
 3251 4822 100 11663 10k potm.  
 3252 4822 051 20102 1k 5% 0,1W  
 3253 4822 100 11663 10k potm.  
 3254 4822 051 20182 1k8 5% 0,1W  
 3255 4822 051 20103 10k 5% 0,1W  
 3260 4822 051 20472 4k7 5% 0,1W  
 3261 4822 100 11663 10k potm.  
 3262 4822 051 20104 100k 5% 0,1W  
 3263 4822 051 20332 3k3 5% 0,1W  
 3265 4822 051 20102 1k 5% 0,1W  
 3266 4822 051 20333 33k 5% 0,1W  
 3270 4822 051 20471 470 $\Omega$  5% 0,1W  
 3271 4822 116 83482 115 $\Omega$  1%  
 3272 4822 116 83483 681 $\Omega$  1%  
 3273 4822 051 20471 470 $\Omega$  5% 0,1W  
 3276 4822 051 20332 3k3 5% 0,1W  
 3281 4822 051 20102 1k 5% 0,1W  
 3282 4822 051 20221 220 $\Omega$  5% 0,1W  
 3290 4822 051 20331 330 $\Omega$  5% 0,1W  
 3291 4822 051 20182 1k8 5% 0,1W  
 3292 4822 051 20105 1M 5% 0,1W  
 3293 4822 051 20472 4k7 5% 0,1W  
 3296 4822 051 20331 330 $\Omega$  5% 0,1W  
 3297 4822 051 20683 68k 5% 0,1W  
 3298 4822 051 20333 33k 5% 0,1W  
 3299 4822 051 20122 1k2 5% 0,1W  
 3300 4822 051 20331 330 $\Omega$  5% 0,1W  
 3303 4822 051 20472 4k7 5% 0,1W  
 3316 4822 051 20333 33k 5% 0,1W  
 3317 4822 051 20822 8k2 5% 0,1W  
 3318 4822 051 20333 33k 5% 0,1W  
 3904 4822 051 10102 1k 2% 0,25W  
 3905 4822 051 20109 10 $\Omega$  5%  
 3909 4822 051 20272 2k7 5%  
 3950 4822 051 20152 1k5 5%  
 3951 4822 051 20181 180 5%  
 3960 4822 051 20153 15k 5%  
 3961 4822 051 20103 10k 5%  
 3965 4822 051 20103 10k 5%  
 3966 4822 051 20103 10k 5%  
 3967 4822 051 20103 10k 5%  
 3968 4822 051 20181 180 $\Omega$  5%  
 3970 4822 051 20471 470 $\Omega$  5%  
 3971 4822 051 20681 680 $\Omega$  5%  
 3973 4822 051 54642 4k64 1%  
 3974 4822 051 20221 220 $\Omega$  5%  
 3975 4822 051 54642 4k64 1%  
 3995 4822 051 20008 OR

**Coils**

5141 5322 157 63043 47 $\mu$ H 10%  
 5150 5322 157 63043 47 $\mu$ H 10%  
 5161 4822 156 21648 2.2 $\mu$ H 19.3mH z  
 5230 4822 526 10548 Bead  
 5231 4822 526 10548 Bead  
 5241 4822 157 63636 4FT 9.6MHz  
 5251 4822 157 63635 Coil  
 5283 5322 157 63043 47 $\mu$ H 10%  
 5311 5322 157 63043 47 $\mu$ H 10%  
 5319 5322 157 63043 47 $\mu$ H 10%  
 5326 4822 526 10548 Bead  
 5331 5322 157 63043 47 $\mu$ H 10%  
 5953 4822 157 63347 470 $\mu$ H  
 5980 4822 148 81212 Transformer  
 5981 5322 157 63043 47 $\mu$ H 10%  
 5986 4822 157 51904 100 $\mu$ H  
 5990 5322 157 63043 47 $\mu$ H 10%

**Diode**

6170 5322 130 31928 BAS16  
 6225 5322 130 31928 BAS16  
 6961 5322 130 31928 BAS16  
 6965 4822 130 80125 BZX84-C5V6  
 6968 5322 130 31928 BAS16  
 6980 5322 130 31928 BAS16  
 6984 5322 130 32962 BZV85-C6V2  
 6985 4822 130 81125 MA701A  
 6990 5322 130 31928 BAS16

**Transistor & I.C.'s**

7040 4822 209 31329 LZ2314Z /05R  
 7040 4822 209 31331 LZ2324Z /00T/01T  
 7103 5322 130 41982 BC848B  
 7114 4822 209 31205 LM293D  
 7125 5322 130 41982 BC848B  
 7141 4822 209 30637 LZ93B53  
 7150 4822 209 30636 LZ93F31  
 7170 4822 209 30635 LR36683N  
 7187 5322 130 41982 BC848B  
 7196 4822 130 42353 BFS19  
 7214 5322 130 60503 BSR15  
 7215 4822 130 62908 BSR13  
 7223 5322 130 41982 BC848B  
 7230 4822 209 30638 IR3P69  
 7265 5322 130 41982 BC848B  
 7266 5322 130 41983 BC858B  
 7270 5322 130 41982 BC848B  
 7272 5322 130 41982 BC848B  
 7282 5322 130 41982 BC848B  
 7292 5322 130 41982 BC848B  
 7299 5322 130 41982 BC848B  
 7316 5322 130 41982 BC848B  
 7909 4822 130 42615 BC817-40  
 7961 5322 130 61817 BCX56-16  
 7967 5322 130 41982 BC848B  
 7968 5322 130 41982 BC848B  
 7970 4822 130 42615 BC817-40  
 7971 4822 130 82847 PC817I  
 7972 5322 209 62029 TL431ILP  
 7992 4822 209 30639 MC78L08ABP